wastes such as bagassee, rice straw and husk, straws of wheat, maize and bazra, cotton sticks are the main sources of non-conventional energy in the State of Punjab.

(b) A potential of about 2800 MW of energy from agricultural, including agro-industrial, wastes has been estimated for Punjab. The estimated costs for converting these wastes into energy include costs of storage, compacting, transportation, besides generation cost. The harnessing of the full potential of this energy resource, however, is limited by availability of capital resources, as well as of cost effective technologies.

(c) The Ministry of Non-conventional Energy Sources has launched national programmes for utilising the agricultural, including agro-industrial wastes, for power generation, through co-generation and gasification routes, for all States/UTs including Punjab. Biomass gasifier systems equivalent to 430 KW have been installed and 1000 KW equivalent are under installation at various locations in Punjab. A 10 MW rice straw based pilot project has been set up at Jalkheri in Punjab.

Energy Centres in States

4180. SHRI IQBAL SINGH: Will the PRIME MINISTER be pleased to state:

(a) whether Government have opened Energy Centres at Gurgaon in Haryana by assisting American and Indian firms;

(b) if so, the details thereof and the reasons therefor;

(c) whether such Energy Centres are likely to be opened in other States also, particularly in Punjab;

(d) if so, what steps are being taken by Government in this respect; and

(e) if not, the reasons therefor?

THE MINISTER OF STATE IN THE MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES (SHRI S. KRISHNA KUMAR): (a) and (b) The Ministry of Non-conventional Energy Sources has established a Solar Energy Centre at Gwal Pahari in Gurgaon District of Haryana. The Centre conducts tests on various solar thermal, photovoltaic production. The Centre also provides consultancy, advisory services and information on various solar energy technologies and applications. The Centre is the nodal institution to coordinate cooperation in the field of solar energy among the G-15 countries and has facilities for training activities. The Centre has received assistance from the United Nations Development Programme and Governments of USA and Germany for the establishment of its various facilities. No direct assistance has been provided for this centre by American or Indian firms.

(c) to (e) There is no proposal to establish such a Centre in other places in India as this is a National facility and costly to replicate.

Community Bio-Gas Plants in Andhra Pradesh

4181. SHRI V. HANUMANTHA RAO: Will the PRIME MINISTER be pleased to state:

(a) whether there is any proposal to encourage municipal and urban authorities to set up Community Bio-Gas Plants;

(b) whether any pilot schemes for cities have been prepared;

(c) if so, the details thereof;

(d) whether there is any proposal to set up such a pilot Bio-gas Plant in Hyderabad;

(e) if so, the details thereof;

(f) in what manner Government propose to encourage development of non-conventional energy in urban areas; and

(g) whether there is any such proposal

under consideration for the remaining part of Eighth Five Year Plan?

THE MINISTER OF STATE IN THE MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES (SHRI S. KRISHNA KUMAR): (a) to (c) Yes, Sir, the Government proposes to encourage Municipal and Urban Authorities to set up Community Bio-gas Plants based on the wastes generated in urban and municipal sector. A programme for large size night soil based bio-gas plants in the capacities 35 cum - 60 cum linked with sanitary toilet complexes has been launched during 1993-94. The bio-gas plants under this scheme have been linked with sanitation improvement/disposal programme of the municipal and local bodies. Central assistance ranging from Rs.5.60 lakhs to Rs.8.00 lakhs depending on the size of the plant is being extended. In addition, 20% central assistance is also provided on project contigency towards construction, operation and maintenance of such plants for minimum period of 20 years.

Demonstration projects for setting up of bio-gas plants based on other wastes like MSW, Vegetable market wastes, Slaughter house wastes, etc. are proposed to be taken up under a project initiated jointly by MNES and UNDP/GEF fund for development of High rate Bio-methanation Processes. On successful demonstration of such projects, extension of the activity on a larger scale will be taken up.

(d) and (e) No proposal has been received for setting up of such a pilot bio-gas plant in Hyderabad.

(f) and (g) Apart from encouragement in recovery of biogas from the wastes, there are other non-going programmes in non-conventional energy for urban areas. In respect of Solar Thermal Energy Programme, The Government is promoting installation of solar water heating system, air heating system, solar cookers and solar stills. Battery operated buses for reducing the pollution in the urban areas have also been encouraged and cost of such vehicles are subsidised by the Government. All these activities continue during remaining period of the Eighth Five Year Plan.

हरियाणा में सौर तापीय प्रणाली

4182. **श्री रामजीलाल:** क्या **प्रधान मंत्री** यह बताने की कोशिश करेंगे कि:

(क) क्या सरकार सौर तापीय योजना को प्रत्येक गांव में पहुंचाने का प्रयास कर रही है; यदि हां, तो तत्संबंधी ब्यौरा क्या है;

(ख) क्या सौर तापीय प्रणाली के माध्यम से प्रदूषण को रोका जा सकता है;

(ग) यदि हां, तो गत तीन वर्षों के दौरान इस योजना हेतु किए गए बजट प्रावधानों का राज्य-वार ब्यौरा क्या है; और

(घ) विशेष रूप से हरियाणा में इस योजना को कितनी सफलता मिली है तथा चालू वर्ष के दौरान इस योजना को बढ़ावा देने के लिए उस राज्य को प्रदान की गई वित्तीय सहायता का ब्यौरा क्या है?

अपारंपरिक ऊर्जा स्रोत मंत्रालय में राज्य मंत्री (श्री एस० कृष्ण कुमार): जी, हां। सरकार समूचे देश में, जिसमें गांव शामिल हैं, विभिन्न सौर तापन प्रणालियों को लोकप्रिय बनाती रही है। इस योजना के तहत सौर जल तापन प्रणालियां, सौर वायु तापन प्रणालियां/टिम्बर क्लिन, सौर स्टिल और सौर कूकर जैसी प्रणालियां संस्थापित की जा रही हैं। 31.3.94 तक समूचे देश में सौर तापीय प्रणालियों के लिए लगभग 2,80,000 वर्ग मीटर संग्राहक क्षेत्र और 3,40,000 सौर कूकर संस्थापित किए गए हैं।

(ख) और (ग) सौर तापन प्रणालियां सौर ऊर्जा पर आधारित हैं जो कि प्रदूषण मुक्त हैं। पिछले तीन वर्षों के दौरान इस योजना के तहत किया गया राज्यवार व्यय विवरण के रूप में संलग्न है **(नीचे देखिए)**।

(घ) हरियाणा में 31.3.1994 तक सौर तापन के लिए 6626 वर्ग मी० संग्राहक क्षेत्र और 12874 सौर कूकर संस्थापित किए गए हैं। चालू वर्ष के दौरान वित्तीय सहायता में विभिन्न सौर तापीय युक्तियों के लिए आर्थिक राज सहायता और उदार ऋण शामिल होंगे और यह राज्य सरकारों और लाभभोगियों से प्राप्त प्रस्तावों के